CALFED BAY DELTA PROGRAM
MEETING NOTES
(DRAFT)

DELTA DRINKING WATER COUNCIL
January 27, 2000
Resources Building
1416 9th Street
Sacramento, CA 95814
(Attendance Roster Attached)

SUMMARY OF ACTION ITEMS:

1. **Steve Ritchie to consult with Mike Madigan about filling the vacancy on the Delta Drinking Water Council.**
2. **CALFED to show funding resources (CALFED and non-CALFED) towards actions and studies (referring to the Drinking Water Improvement Strategy).**
3. **CALFED to form a Blue Ribbon Panel to advise the Council on treatment research and development.**
4. **Briefing by DWR on Bulletin 160 and the State Board on basin planning.**
5. **Steve Ritchie to report on the chronology of events leading to the operation decisions in Fall 1999 including integration with No Name Group and DAT authority.**
6. **CALFED to modify Drinking Water Quality Target to include equivalency statement.**

ROLE OF DELTA DRINKING WATER COUNCIL

Dave Spath, Chair, opened the meeting with a discussion on the role of the Delta Drinking Water Council. No changes to the role and responsibilities of the Council members were made. Wally Bishop, CCWD, suggested that the existing vacancy on the Council be filled with someone from the State Water Resource Control Board. He suggested someone with watershed/basin planning knowledge. Other Council members concurred with Wally's suggestion. Steve Ritchie, acting CALFED Program Director, indicated that he would approach Mike Madigan, Chair of BDAC, regarding a nomination to fill the vacancy.

It was requested from the last Council meeting that the CALFED Drinking Water Improvement Strategy diagram discussion be included along with the discussion on the role of the Council members. Steve Ritchie presented the Drinking Water Improvement Strategy diagram and explained in detail the "actions" and "studies" categories. Steve pointed out that work in the actions categories is starting now (e.g. storage and operations, source control, conveyance) and that they can be tiered off the NEPA/CEQA document. Steve pointed out that treatment was not included under the action categories

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(right hand side) because there are ongoing treatment studies and actions being conducted by the water utilities and research groups. Treatment technology is, however, covered under the studies category of the diagram (left hand side) signifying CALFED's intent to support treatment studies through partnerships with such entities as AWARF and EPA. Walt Wadlow suggested that the diagram show where the resources will be spent via CALFED and where they are spent by non-CALFED entities.

Wally Bishop and several other members recommended that CALFED have a blue ribbon panel who can inform the members of the state of research primarily so the members have a sense of timing of treatment technologies. The blue ribbon panel can feed back to EPA on the state of knowledge and the cost effectiveness of different treatment technologies. The members generally agreed that it was the role of the Council to track the state of research on treatment technology. The CALFED Drinking Water Improvement Strategy provides for expert panels to be formed to advise the Council on studies and actions.

Proposition 13 was discussed by Francis Spivey Weber, Mono Lake Committee. Her concern was that the Council needs to get on top of funds which may be available for drinking water quality indicating that there may be opportunities for matching funds to leverage CALFED's investment. It was suggested that the Council also track Proposition 12 funds which also has funds for water quality. Walt Wadlow asked that CALFED present an overall funding picture for the next meeting to include funding sources from CALFED and CALFED related sources.

Tim Quinn, MWD, passed out a report entitled "California's Bay-Delta Water Quality Dilemma: It's Getting Worse – Not Better", December 1999. An excerpt from the Executive Summary reads "CALFED must immediately develop a more comprehensive approach which avoids any degradation of water quality in the near-term and includes a viable plan for source water quality improvement in the future". Tim indicated that the State Board is developing a report which has a broader geographical perspective and includes drinking water as a beneficial use. Robert Shanks, SRCSD, indicated that CUWA and the SRCSD have been working with the Regional Boards on developing a Drinking Water Policy which will go into the next Basin Plan.

Steve Ritchie noted to the Council members that there is no management entity with broad authority to plan and manage drinking water actions and studies. He pointed out that the CALFED Ecosystem Restoration Program would probably be managed by an independent entity and asked if that is something that the Council members would want to explore. Hearing no suggestions, Wally Bishop then asked that the Council members be briefed on DWR's Bulletin 160 and the State Board's Basin Plan at the next meeting. Margaret Young, Clean Water Action, pointed out that there was a need to focus the basin planning on the Delta drainage basin and watersheds affecting the basin. Francis Spivey Weber informed fellow members about the scoping session with DWR and other entities for Bulletin 160 and that the opportunity to get involved is now. The Council members generally agreed that they want to be briefed by DWR and the State Board as to what's been done in the past and to see what they would do if funds were available.

Steve Ritchie cautioned the members that their requests would have to be gaged due to the lack of staff resources in the CALFED Drinking Water Quality Program. Paul Hutton, Program Manager of the CALFED Drinking Water Quality Program, is leaving to return to DWR, modeling group. Bruce Macler, EPA, cited the potential difficulty in implementing the Council recommendations due to the lack of resources in the CALFED Drinking Water Quality Program.

FY 2001 ACTIONS AND STUDIES

Steve Ritchie indicated that CALFED is planning for FY 2001 actions and studies and asked the Council members for recommendations. He showed a diagram depicting a proposed process for project selection. The proposed process includes a planning effort involving the Council members, technical work groups and CALFED staff which culminates in a Drinking Water Implementation Plan. Proposals can be solicited, programs can be directed without solicitation, and future phases of previously funded activities can be funded. Recommendations are made based on staff review and peer review to the Council members, BDAC and the Policy Group for decision. Decision makers are the Secretary for Resources and the Secretary of Interior. The Council members had no changes to the proposed process.

STORAGE AND OPERATIONS

Dave Briggs, CCWD, gave a presentation on the report entitled "Drinking Water Quality Operations Studies" December 14, 1999 (overheads attached). He pointed out that this work was to assist CALFED's Integrated Storage Investigation in evaluating the relationship between various types and locations of storage and the overall role of storage in water quality improvement as part of the CALFED Water Management Strategy. Multiple objectives (i.e. water supply reliability, operational flexibility, and ecosystem restoration) were not explicitly considered in the preliminary scoping studies; the primary focus was on drinking water quality. Dave indicated that tradeoffs between these objectives will be evaluated within the larger ISI analysis. Bromide was chosen as the primary water quality indicator for these studies. The effect of new storage, north and south of the Delta, under operating rules designed specifically for water quality improvement were explored. The intent of the new operation rules was to lower salinity in the south Delta through enhanced outflow and to lower exports when seawater intrusion had increased salinity concentration in the south Delta. New operation rules resulted in peak bromide concentration being lowered by 30-50% in fall months of many years, including the driest ones.

Wally Bishop indicated that federal decisions on pumping to protect fisheries seem to be directed by a group called DAT. Several members discussed the consequences of operation decisions which resulted in serious salt loads occurring south of the Delta causing severe constraints on water delivery. A discussion ensued which raised the issue of better representation (urban) on the DAT and the importance of equivalent protection for water quality. Steve Ritchie indicated that the No Name Group is set up to integrate

with the DAT but that the communication should be improved. Steve told the members that there are steps being taken to put together the chronology of event which lead to the reduced export pumping. Pankaj Pareky, LADWP, suggested additional studies and tools to balance operational systems on a day-to-day basis. It was agreed that Steve would report on the chronology of events and that there would be someone at the next meeting to give a neutral description of the duties of the DAT.

TARGETS AND MILESTONES

Steve talked about the 50 ug/l bromide and 3 mg/l TOC targets, mentioned in the revised CALFED Phase II Report. He explained the premise for the derivation of the values (i.e. based on EPA's Stage 2 M/DBP Rule MCL placeholder values of 40 ug/l TTHMs, 30 ug/l HAAs, and 5 ug/l bromate). Huali Chai, Bay Institute, expressed concern that the bromide level is unattainable, therefore by default, additional storage and conveyance would be necessary. After some discussion, Dave Spath recommended that CALFED modify the CALFED Drinking Water Quality Targets to include the equivalency statement which reads "or an equivalent level of public health protection using a cost effective combination of alternative source waters, source control and treatment technologies" (revised Phase II Report, June 1999).

PUBLIC COMMENT

Phil Wendt, DWR, recommended that Curtis Creel be consulted about Bay Delta Standards to protect water quality (see attached) and fisheries and that the Council members engage in a scoping process for Bulletin 160.

NEXT MEETING

The next Delta Drinking Water Council meeting was set for March 2, 2000. However, CALFED made the decision to postpone the next meeting. A new date for the next meeting will be announced by mail.

CALFED BAY-DELTA PROGRAM
DELTA DRINKING WATER COUNCIL MEETING
Sign-In Sheet
Resources Building
Room 1131
Thursday, January 27, 2000
12:00 noon - 3:30 p.m.

Name	*Address/Affiliation*	*Phone/Fax #*	*E-Mail*
Phil Wendt	DWR	916-327-1260	pwendt@water.ca.gov
Bill Crooks	City Sacto 3505 Duet Ct. – Sacto	916-369-2909	bCrooks@ns.net
DAN PETERSON	DWR Ofm	916 657-9978	danp@water.ca.gov
DAVID OKITA	SOLANO COUNTY WATER AGENCY	707 451-2904	dokita@solanobiz.net
Phil Metzger	Teleconference		
Bruce Macler	USEPA	4157441884	macler.bruce@epa.gov
Marguerite Young	Clean Water Action	415 362 3040	myoung@cleanwater.org
Frances Spivy-Weber	Mono Lake Committee	(310) 316-0041	frances@monolake.org

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CALFED BAY-DELTA PROGRAM
DELTA DRINKING WATER COUNCIL MEETING
Sign-In Sheet
Resources Building
Room 1131
Thursday, January 27, 2000
12:00 noon - 3:30 p.m.

Name	Address/Affiliation	Phone/Fax #	E-Mail
Dave Spath	CDHS 601 N. 7th St.	916-322-2308 916-323-9869	DSPATH@DHS.CA.GOV
Wally Bishop	CCWD	925-688-8034 925-688-8197	wbishop@ccwater.com
Walt Wadlow	SCVWD	408.265.2600 408.267.7442	waltwadl@scvwddst.ca.us
Tim Quinn	MWDSC	916.650-2660 916.444.6887	tquinn@mwd.dst.ca.us
Pankaj Parekh	Los Angeles, Dept. of Water & Power 111 N. Hope St., A-18, LA 90012	213 367-3191 213 367-3630	pankaj.parekh@LADWP.com
Hualiq. Chai	The Bay Institute	408 297-6740 408 297-6770	lawhqc@aol.com
Robert Shanks	SRCSD	916 874-8239 916 874-7100	SHANKSB@pwa.co.sacramento.ca.us
Phillippe Daniel	Camp Dresser + McKee Inc 100 Pringle Ave #300, Walnut Creek	925-296-8013 925-933-4174	danielpa@cdm.com

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CALFED BAY-DELTA PROGRAM
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Sign-In Sheet
Resources Building
Room 1131
Thursday, January 27, 2000
12:00 noon - 3:30 p.m.

Name	*Address/Affiliation*	*Phone/Fax #*	*E-Mail*
D. Briggs	CCWD	925 688-8073 -8142	dbriggs@ccwater.com
Lisa Holm	CCWD	925-688-8106 8142	LHOLM@CCWATER.COM
Carl Lischeske	DHS	916-323-3693 -9867	clisches@dhs.ca.gov
JIM McDANIEL	LA DWP	213-367-1050 (P) -0038 (F)	James.McDaniel@water.LADWP.com
MARIAN MOE	Ca. Attorney General's Office	322-5460	

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Delta Water Quality: Influences, causality

Primary:

- Seawater intrusion caused by low Delta outflow contributes salinity (TDS, bromide, chloride)
  - Onset of salinity intrusion: Delta outflow less than 30,000 cfs
- Drainage, watershed runoff, wastewater treatment contribute salinity and organic carbon
  - In-Delta, San Joaquin River

Delta Water Quality: Influences, causality

Secondary:

- Delta cross channel gate position and other barriers change the flow dynamics (circulation) in the Delta
- Export rate in south Delta can, in some situations, affect circulation patterns
- Tides and barometric pressure can affect salinity on a shorter time scale (daily)

The Delta as a drinking water source

- TDS 120 275 580 mg/L [min ave max]
- Bromide 20 280 800 µg/L
- Chloride 15 90 250* mg/L
- Organic carbon 2.2 3.7 11 mg/L (dissolved)
- Compare with Sierra Rivers
  - TDS = 32 mg/L, Cl = 2.0 mg/L ,TOC = 2.0 mg/L

- Delta quality as related to delivered quality
  - Regional and local blending
  - Influences between the Delta (source) and treatment plants (end use)

Delta water quality: competing objectives with other uses

- Timing of exports
  - Selective diversions vs. supply risk
    - Example: High export rate in the fall
  - Ecological vs. quality need: highest quality water is usually May-July
    - Example: Delta smelt presence in the south Delta, export shifting
- Operation of the Delta Cross Channel
- Use new tools to improve quality and reduce conflicts, preliminary studies completed in 1999

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Stage 1 studies, early implementation

- Selective filling of San Luis Reservoir
  - Improve water quality during the fall when exports are high or shift diversions into a higher quality period.
  - Tradeoffs
- Effectiveness of Sacramento River-Mokelumne channel
- Dynamic operation of the DCC
- Better separation of high- and low-quality water after export from the Delta
  - San Luis reservoir/Delta differential quality
  - Shared use of California Aqueduct
  - Tradeoffs

Water quality, operations, and additional storage

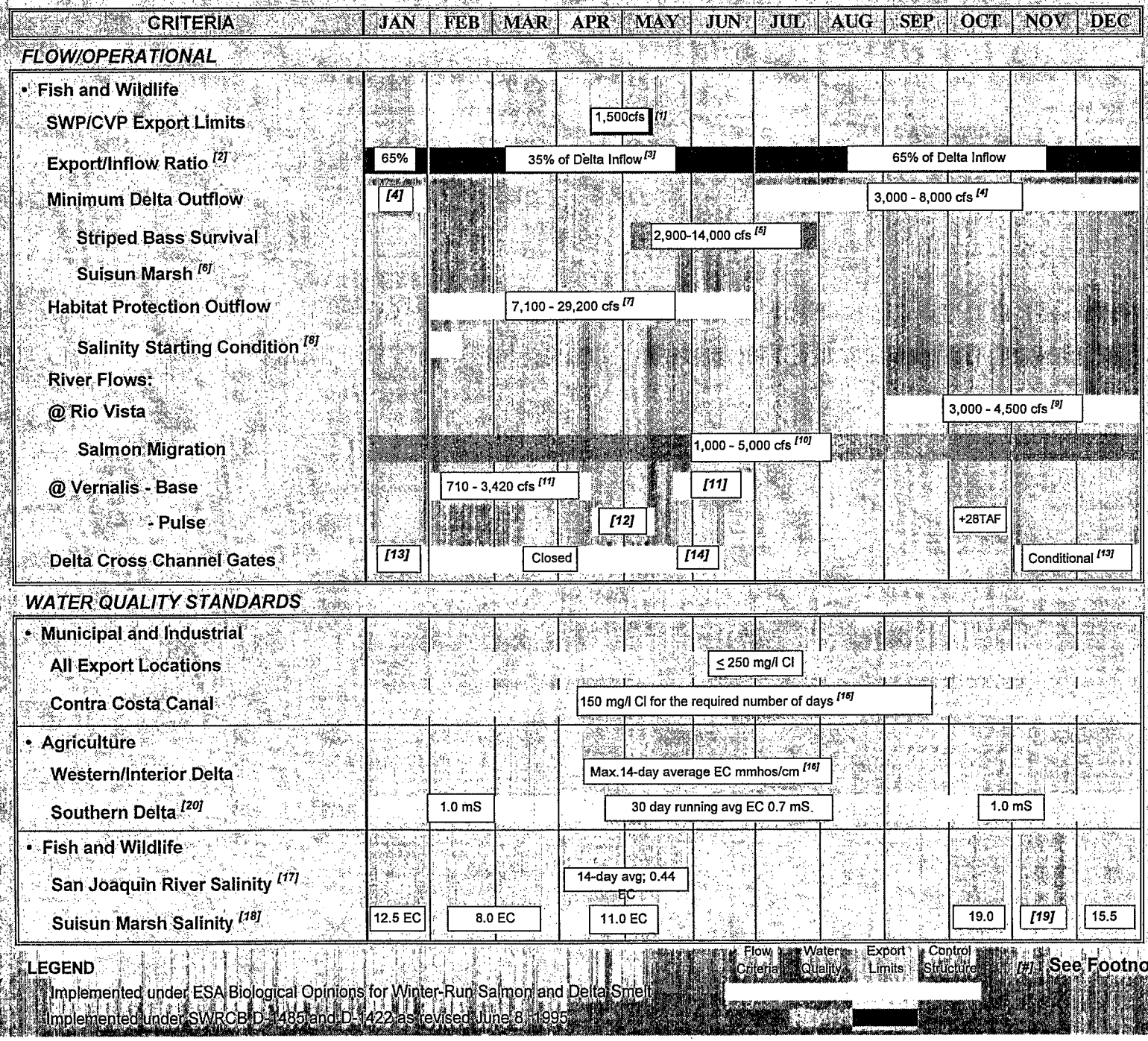
- New facilities need new operation rules
  - Divert surplus, use as Delta outflow in drier periods
    Efficiency: addresses the worst problem but risks supply
  - Divert more in higher quality periods, divert less during low quality periods
  - Improve operational flexibility for better ecological protection
- North and South of Delta (surface or groundwater):
  1-2 MAF of new storage, 3,000 cfs extraction/fill capacity

- Effectiveness: 30-50% peak bromide reduction, even in dry years. Wet periods not affected much.
  - Tradeoffs: tools completely dedicated to water quality

Bay-Delta Standards

DRAFT

Contained in D-1485, D-1422 and the Winter-Run & Delta Smelt Biological Opinions and in conformance with the 12/15/94 Principles for Agreement



Revised September 10, 1999

Preliminary, Subject to Revision

Footnotes

(1) Maximum 3-day running average of combined export rate (cfs) which includes Tracy Pumping Plant and Clifton Court Forebay inflow less Byron-Bethany pumping. [illegible]

Year Type	All
Apr15 - May15*	The greater of 1,500 or 100% of 3-day avg. Vernalis flow

* This time period may need to be adjusted to coincide with fish migration. Maximum export rate may be varied by CalFed Ops group.

(2) The maximum percentage of average Delta inflow (use 3-day average for balanced conditions with storage withdrawal, otherwise use 14-day average) diverted at Clifton Court Forebay (excluding Byron-Bethany pumping) and Tracy Pumping Plant using a 3-day average. (These percentages may be adjusted upward or downward depending on biological conditions, providing there is no net water cost.)

(3) The maximum percent Delta inflow diverted for Feb may vary depending on the January 8RI.

Jan 8RI	Feb exp. limit
Š 1.0 MAF	45%
between 1.0 & 1.5 MAF	35%-45%
> 1.5 MAF	35%

(4) Minimum monthly average Delta outflow (cfs). If monthly standard ≤ 5,000 cfs, then the 7-day average must be within 1,000 cfs of standard; if monthly standard > 5,000 cfs, then the 7-day average must be ≥ 80% of standard.

Year Type	All	W	AN	BN	D	C
Jan	4,500*					
Jul		8,000	8,000	6,500	5,000	4,000
Aug		4,000	4,000	4,000	3,500	3,000
Sep	3,000					
Oct		4,000	4,000	4,000	4,000	3,000
Nov-Dec		4,500	4,500	4,500	4,500	3,500

* Increase to 6,000 if the Dec 8RI is greater than 800 TAF.

(5) Minimum average Delta outflow (cfs) for period [illegible]

Year Type	W	AN	BN	Subnormal Snowmelt*	D	C
May6-31	14,000	14,000	11,400	6,500	4,300	3,300
Jun	14,000	10,700	9,500	5,400	3,600	3,100
Jul	10,000	7,700	6,500	3,600	3,200	2,900

* Subnormal Snowmelt category applies to Wet, Above Normal, and Below Normal water year classifications only.

(6) The water quality standards for fish and wildlife set forth in Water Right Decision 1485 (D-1485), Table II, for striped bass spawning, Suisun Marsh, and operational contraints (export rates and Delta Cross Channel gate operations) are replaced with those contained in Attachment B of Order WR 95-6.

(7) Minimum 3-day running average of daily Delta outflow of 7,100 cfs OR, either the daily average or 14-day running average EC at Collinsville is less than 2.64 mmhos/cm. (This standard for March may be relaxed if the Feb 8RI is less than 500 TAF. The standard does not apply in May and June if the May estimate of the SRI IS < 8.1 MAF at the 90% exceedence level in which case a minimum 14-day running average flow of 4,000 cfs is required.) For additional Delta outflow objectives, see TABLE A.

(8) February starting salinity: If Jan 8RI > 900 TAF, then the daily or 14-day running average EC @ Collinsville must be ≤ 2.64 mmhos/cm for at least one day between Feb 1-14. If Jan 8RI is between 650 TAF and 900 TAF, then the CalFed Op's group will determine if this requirement must be met.

(9) Rio Vista minimum monthly average flow rate in cfs (the 7-day running average shall not be less than 1,000 below the monthly objective).

Year Type	All	W	AN	BN	D	C
Sep	3,000					
Oct		4,000	4,000	4,000	4,000	3,000
Nov-Dec		4,500	4,500	4,500	4,500	3,500

(10) Rio Vista minimum 30-day running average flow rate in cfs.

Year Type	W	AN	BN	D	C
Jan	2,500	2,500	2,500	1,500	1,500
Feb1-Mar15	3,000	2,000	2,000	1,000	1,000
Mar16-Jun30	5,000	3,000	3,000	2,000	2,000
Jul	3,000	2,000	2,000	1,000	1,000
Aug	1,000	1,000	1,000	1,000	1,000
Sep-Dec	5,000	2,500	2,500	1,500	1,500

(11) BASE Vernalis minimum monthly average flow rate in cfs (the 7-day running average shall not be less than 20% below the objective). Take the higher objective if X2 is required to be west of Chipps Island.

Year Type	All	W	AN	BN	D	C
Feb-Apr14 and May16-Jun		2,130 or 3,420	2,130 or 3,420	1,420 or 2,280	1,420 or 2,280	710 or 1,140

(12) PULSE Vernalis minimum monthly average flow rate in cfs. Take the higher objective if X2 is required to be west of Chipps Island.

Year Type	All	W	AN	BN	D	C
Apr15 - May15		7,330 or 8,620	5,730 or 7,020	4,620 or 5,480	4,020 or 4,880	3,110 or 3,540
Oct	1,000*					

* Up to an additional 28 TAF pulse/attraction flow to bring flows up to a monthly average of 2,000 cfs [illegible]

(13) For the Nov-Jan period, Delta Cross Channel gates may be closed for up to a total of 45 days.

(14) For the May 21-June 15 period, close Delta Cross Channel gates for a total of 14 days per CALFED Ops group. During this period the Delta cross channel gates may close 4 consecutive days each week, excluding weekends.

(15) Minimum # of days that the mean daily chlorides ≤ 150 mg/l must be provided in intervals of not less than 2 weeks duration. Standard applies at Contra Costa Canal Intake or Antioch Water Works Intake.

Year Type	W	AN	BN	D	C
# Days	240	190	175	165	155

(16) The maximum 14-day running average of mean daily EC (mmhos/cm) depends on water year type.

	WESTERN DELTA				INTERIOR DELTA			
	Sac River @ Emmaton		SJR @ Jersey Point		Mokelumne R @ Terminous		SJR @ San Andreas	
Year Type	0.45 EC from April 1 to date shown	EC value from date shown to Aug15*	0.45 EC from April 1 to date shown	EC value from date shown to Aug15*	0.45 EC from April 1 to date shown	EC value from date shown to Aug15*	0.45 EC from April 1 to date shown	EC value from date shown to Aug15*
W	Aug 15		Aug 15		Aug 15		Aug 15	
AN	Jul 1	0.63	Aug 15		Aug 15		Aug 15	
BN	Jun 20	1.14	Jun 20	0.74	Aug 15		Aug 15	
D	Jun 15	1.67	Jun 15	1.35	Aug 15		Jun 25	0.58
C		2.78		2.20		0.54		0.87

* When no date is shown, EC limit continues from April 1.

(17) Compliance will be determined between Jersey Point & Prisoners Point. Does not apply in critical years or in May when the May 90% forecast of SRI ≥ 8.1 MAF.

(18) During deficiency period, the maximum monthly average mhtEC at Western Suisun Marsh stations as per SMPA is:

Month	mhtEC
Oct	19.0
Nov	16.5
Dec-Mar	15.6
Apr	14.0
May	12.5

(19) In November, maximum monthly average mhtEC = 16.5 for Western Marsh stations and maximum monthly average mhtEC = 15.5 for Eastern Marsh stations in all periods types.

(20) Per D-1422, maximum 30-day running average EC for San Joaquin River at Vernalis, San Joaquin River at Brandt Bridge, Old River near Middle River and, Old River at Tracy Road Bridge. Revisions may be made when DWR, USBR, and SDWA agree on new contract.

The EC objectives at Old River shall be implemented by 12/31/97.

TABLE A

Number of Days When Max. Daily Average Electrical Conductivity of 2.64 mmhos/cm Must Be Maintained. (This can also be met with a maximum 14-day running average EC of 2.64 mmhos/cm, or 3-day running average Delta outflows of 11,400 cfs and 29,200 cfs, respectively.) Port Chicago Standard is triggered only when the 14-day average EC for the last day of the previous month is 2.64 mmhos/cm or less. PMI is previous month's 8RI. If salinity/flow objectives are met for a greater number of days than required for any month, the excess days shall be applied towards the following month's requirement. The number of days for values of the PMI between those specified below shall be determined by linear interpolation.

PMI (TAF)	Chipps Island (Chipps Island Station D10) FEB	MAR	APR	MAY	JUN
Š 500	0	0	0	0	0
750	0	0	0	0	0
1000	28*	12	2	0	0
1250	28	31	6	0	0
1500	28	31	13	0	0
1750	28	31	20	0	0
2000	28	31	25	1	0
2250	28	31	27	3	0
2500	28	31	29	11	1
2750	28	31	29	20	2
3000	28	31	30	27	4
3250	28	31	30	29	8
3500	28	31	30	30	13
3750	28	31	30	31	18
4000	28	31	30	31	23
4250	28	31	30	31	25
4500	28	31	30	31	27
4750	28	31	30	31	28
5000	28	31	30	31	29
5250	28	31	30	31	29
5500	28	31	30	31	30

* When 800 TAF < PMI < 1000 TAF, the number of days is determined by linear interpolation between 0 and 28 days.

PMI (TAF)	Port Chicago (continuous recorder at Port Chicago) FEB	MAR	APR	MAY	JUN
0	0	0	0	0	0
250	1	0	0	0	0
500	4	1	0	0	0
750	8	2	0	0	0
1000	12	4	0	0	0
1250	15	6	1	0	0
1500	18	9	1	0	0
1750	20	12	2	0	0
2000	21	15	4	0	0
2250	22	17	5	1	0
2500	23	19	8	1	0
2750	24	21	10	2	0
3000	25	23	12	4	0
3250	25	24	14	6	0
3500	25	25	16	9	0
3750	26	26	18	12	0
4000	26	27	20	15	0
4250	26	27	21	18	1
4500	26	28	23	21	2
4750	27	28	24	23	3
5000	27	28	25	25	4
5250	27	29	25	26	6
5500	27	29	26	28	9
5750	27	29	27	28	13
6000	27	29	27	29	16
6250	27	30	27	29	19
6500	27	30	28	30	22
6750	27	30	28	30	24
7000	27	30	28	30	26
7250	27	30	28	30	27
7500	27	30	29	30	28
7750	27	30	29	31	28
8000	27	30	29	31	29
8250	28	30	29	31	29
8500	28	30	29	31	29
8750	28	30	29	31	30
9000	28	30	29	31	30
9250	28	30	29	31	30
9500	28	31	29	31	30
9750	28	31	29	31	30
10000	28	31	30	31	30
> 10000	28	31	30	31	30

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